

CLAIMS

What is claimed is:

- 1 1. A package, comprising:
2 a substrate with an inner surface to which a die is to be attached, forming
3 electrical connections through the substrate, between the die and the exterior of
4 the package;
5 a lid with an inner surface facing the inner surface of the substrate; and
6 sealant disposed between the substrate and the lid in a pattern with at
7 least one break in the pattern.
- 1 2. The apparatus of claim 1, wherein the package is a ball grid array
2 package.
- 1 3. The apparatus of claim 1, wherein the package is a pin grid array
2 package.
- 1 4. The apparatus of claim 1, wherein the die is attached to the lid,
2 and the lid serves to conduct the heat away from the die.
- 1 5. The apparatus of claim 1, wherein a vent-hole is formed through
2 the lid.
- 1 6. The apparatus of claim 1, wherein the pattern in which the sealant
2 is disposed between the lid and the substrate is a substantially rectangular
3 pattern with the at least one break.

1 8. The apparatus of claim 7, wherein the four breaks comprise a
2 minimum of 10% of the total length of what would otherwise be an unbroken
3 substantially rectangular pattern.

1 9. The apparatus of claim 6, wherein the rectangular pattern has four
2 breaks, one in each corner of the substantially rectangular pattern.

1 10. The apparatus of claim 9, wherein the four breaks comprise a
2 minimum of 10% of the total length of what would otherwise be an unbroken
3 substantially rectangular pattern.

1 11. The apparatus of claim 1, wherein the substrate is susceptible to
2 absorbing moisture, and the pressure existing between the substrate and the lid
3 is as a result of moisture being released within the package by the substrate and
4 being converted to steam.

1 12. The apparatus of claim 11, wherein the substrate is comprised of
2 organic material.

1 13. The package of claim 1, wherein the die is attached to the
2 substrate using a controlled collapsed chip connection.

1 14. The package of claim 1, wherein the package is tested by applying
2 heat to the exterior of the package by way of exposing the package to steam at
3 high pressure.

1 15. A method of releasing pressure existing within a package,
2 comprising:
3 attaching a die to an inner surface of a substrate to form electrical
4 contacts between the die and the substrate;
5 disposing sealant about the inner surface of the substrate in a pattern
6 having at least one break in what would otherwise be a pattern forming an
7 unbroken line surrounding the die; and
8 coupling a lid to the substrate, with an inner surface of the lid facing the
9 inner surface of the substrate, using the sealant disposed about the inner surface
10 of the substrate to bond the lid to the substrate.

1 16. The method of claim 15, further comprising disposing thermal
2 attach between the die and the inner surface of the lid to use the lid to conduct
3 heat away from the die.

1 17. The method of claim 15, further comprising modifying apparatus
2 used to dispose the sealant in a pattern forming an unbroken line to dispose the
3 sealant in the pattern having the at least one break in what would otherwise be
4 a pattern forming an unbroken line.

1 18. The method of claim 15, further comprising installing the package
2 for testing in a manner that a vent-hole formed through the lid is blocked,

3 thereby preventing the pressure existing within the package from being
4 released through the vent-hole.

1 19. The apparatus of claim 18, wherein the testing comprises applying
2 heat to the exterior of the package by way of exposing the package to steam at
3 high pressure.

1 20. The method of claim 15, wherein the substrate is susceptible to
2 absorbing moisture, and the pressure existing between the substrate and the lid
3 is as a result of moisture being released within the package by the substrate and
4 being converted to steam.

1 21. The method of claim 15, further comprising installing the package
2 for normal use in a manner that a vent-hole formed through the lid is blocked,
3 thereby preventing the pressure existing within the package from being
4 released through the vent-hole.

1 22. The method of claim 15, wherein the die is attached to the
2 substrate using a controlled collapsed chip connection.

1 23. An electronic device, comprising:
2 a substrate with an inner surface;
3 a lid with an inner surface facing the inner surface of the substrate;
4 a die on which electronic circuitry is disposed, enclosed between the
5 substrate and the lid, and attached to the inner surface of the substrate which
6 provides electrical connections between the die and the exterior of the package;
7 and

8 sealant disposed between the substrate and the lid in a pattern with at
9 least one break in the pattern.

1 24. The apparatus of claim 23, wherein the die is attached to the lid,
2 and the lid serves to conduct the heat away from the die.

1 25. The apparatus of claim 23, wherein the pattern in which the
2 sealant is disposed between the lid and the substrate is a substantially
3 rectangular pattern with the at least one break.

1 26. The apparatus of claim 25, wherein the rectangular pattern has
2 four breaks, one in each side of the substantially rectangular pattern.

1 27. The method of claim 23, wherein the die is attached to the
2 substrate using a controlled collapsed chip connection.